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BEYER WEAVER & THOMAS LLP P.O. BOX 778 BERKELEY, CA 94704-0778			GORDON, CARLENE MICHELLE	
			ART UNIT	PAPER NUMBER
			2124	

DATE MAILED: 09/23/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

09/939,315

Applicant(s)

SOKOLOV, STEPAN

Examiner

Carlene Gordon

Art Unit

2124

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 08/24/2001.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-19 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-19 is/are rejected.
- 7) ☒ Claim(s) 9 and 15 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 24 August 2001 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date 2002 and 2004.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_

Art Unit: 2124

### **DETAILED ACTION**

1. This action is responsive to the application filed on August 24, 2001.

Claims 1-19 are pending in the application.

### ***Drawings***

2. Figure 1A should be designated by a legend such as --Prior Art-- because only that which is old is illustrated. See MPEP § 608.02(g). Corrected drawings in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.121(d)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

3. 37 CFR 1.84(p)(5) states:

(5) Reference characters not mentioned in the description shall not appear in the drawings. Reference characters mentioned in the description must appear in the drawings.

4. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they include the following reference character(s) not mentioned in the description:

Fig. 2B, reference number 214.

Art Unit: 2124

Corrected drawing sheets in compliance with 37 CFR 1.121(d), or amendment to the specification to add the reference character(s) in the description in compliance with 37 CFR 1.121(b) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

### ***Specification***

5. The use of the trademark JAVA has been noted in this application. It should be capitalized wherever it appears and be accompanied by the generic terminology.

Although the use of trademarks is permissible in patent applications, the proprietary nature of the marks should be respected and every effort made to prevent their use in any manner which might adversely affect their validity as trademarks.

### ***Claim Objections***

6. Claims 9 and 15 are objected to because of the following informalities:

In regards to the limitation of claim 9 which states:

popping a reference to a Java object from an execution stack (on line 24  
pg 11)

**Sections that are bolded and underlined should be corrected.**

Suggestions include replacing a (with **said**) and following the limitation  
with a **semicolon (;)**.

Claim 15 contains the same informalities.

Appropriate correction is required.

***Claim Rejections - 35 USC § 101***

7. 35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or  
composition of matter, or any new and useful improvement thereof, may obtain a patent  
therefor, subject to the conditions and requirements of this title.

8. Claims 1-13 are rejected under 35 U.S.C. 101 because the claimed  
invention is directed to non-statutory subject matter. A simple amendment will  
overcome this rejection.

The language of claims 1, 4, and 8 are directed merely to an abstract idea  
that is not tied to a technological machine which would result in a practical  
application producing a concrete, useful, and tangible result to form the basis of  
statutory subject matter under 35 U.S.C. 101. Claims 1, 4 and 8 are abstract  
ideas because:

As to claim 1:

Art Unit: 2124

The JAVA Bytecode instruction is not claimed to reside on a computer readable or not claimed to be performed on an apparatus that could execute the instruction and produce the tangible result.

As to claim 4:

The JAVA virtual machine is not claimed to reside on an apparatus to perform the operations of the claim and produce a tangible result..

As to claim 8:

The method of claim 8 is not claimed to be executed on an apparatus to produce a tangible result.

The rejection of the base claims is necessarily incorporated into their dependent claims; as such, the dependent claims do not provide limitations that overcome the non-statutory subject matter of the base claim.

9. To expedite a complete examination of the instant application the claims rejected under 35 U.S.C. 101 (nonstatutory) above are further rejected as set forth below in anticipation of applicant amending these claims to place them within the four statutory categories of invention.

***Claim Rejections - 35 USC § 112***

10. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Art Unit: 2124

11. Claims 2 and 6 rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

Claims 2 and 6 include the limitation: *pop a **reference to said Java Bytecode instruction** from the top of an execution stack*. Also, claim 2 includes the limitation: *push a **reference to said string representation of said field on top of said execution stack***.

As to claim 2:

It is not described or implied within the scope of the written description that said *Java Bytecode instruction* operates to **pop a reference to said Java Bytecode instruction** from the top of an execution stack. Also, it is not described or implied within the scope of the written description that said *Java Bytecode instruction* operates to push a reference to said string representation of said field on top of said execution stack. According to the written description, the Java Bytecode instruction operates separately of these functions or steps, or is not operative to perform the step **(with emphasis placed on the terms in bold)** previously referred to and as shown on Fig. 3 and described on page 8 paragraph [0025] of the specification.

For purposes of examination, the Office will interpret claim 2, in accordance with the embodiment as described in the specification, to be read as followed:

Art Unit: 2124

**The Java virtual machine** as recited in claim 1, wherein *the virtual machine operates to:*

pop a reference to **said Java object** from an execution stack;  
determine a string representation of a field associated with said Java object; and  
push a reference to said string representation of said field on top of said execution stack.

As to claim 6:

It is not described or implied within the scope of the written description that said virtual machine operates to pop **a reference to said Java Bytecode instruction** from the top of an execution stack. According to the written description, the virtual machine is not described to be operative to perform this step (**with emphasis placed on the terms in bold**) previously referred to and as shown on Fig. 3 and described on page 8 paragraph [0025] of the specification.

For purposes of examination, the Office will interpret claim 6, in accordance with the embodiment as described in the specification, to be read as followed:

The Java virtual machine as recited in claim 5, wherein said virtual machine operates to:

pop a **reference to said Java object from an execution stack;**



Art Unit: 2124

determine a string representation of a field associated with said Java object; and

push a reference to said string representation of said field on top of said execution stack.

12. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

---

13. Claim 1 contains the trademark/trade name JAVA. Where a trademark or trade name is used in a claim as a limitation to identify or describe a particular material or product, the claim does not comply with the requirements of 35 U.S.C. 112, second paragraph. See *Ex parte Simpson*, 218 USPQ 1020 (Bd. App. 1982). The claim scope is uncertain since the trademark or trade name cannot be used properly to identify any particular material or product. A trademark or trade name is used to identify a source of goods, and not the goods themselves. Thus, a trademark or trade name does not identify or describe the goods associated with the trademark or trade name. In the present case, the trademark/trade name is used to identify/describe the *computing environment, bytecode instruction, object, and method* and, accordingly, the identification/description is indefinite.

14. All other claims containing the use of the JAVA trademark in this fashion are rejected under the same rationale as claim 1.

15. Claims 1-19 rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

16. Claim 1 recites the limitation "said *inventive* Java Bytecode instruction" in line 6. There is insufficient antecedent basis for this limitation in the claim. Claim 1 also recites the limitation "an *inventive* Java virtual machine" in line 5. The term "inventive" in claim 1 is a relative term which renders the claim indefinite. The term "inventive" is not defined by the claim, the specification does not provide a standard for ascertaining the requisite degree, and one of ordinary skill in the art would not be reasonably apprised of the scope of the invention. The "inventive Java Bytecode instruction" and the "inventive Java virtual machine" are rendered indefinite by the use of the term "inventive". For the purpose of examination in order to review applicable prior art, "the said inventive Java Bytecode instruction" is interpreted as "the said Java Bytecode" thereby overcoming the lack of antecedent basis, and the "inventive Java virtual machine" is interpreted as "the Java virtual machine".

Each use to the term "inventive" in any of the claims is interpreted to be removed from the claims for the purpose of examination. Reason for doing so is discussed in the previous paragraph.

Art Unit: 2124

17. Claim 1, also, recites the limitation "said Java object" in line 7. There is insufficient antecedent basis for this limitation in the claim.

18. Claim 10 recites the limitations "A method as recited in claim 7" in line 30. There is insufficient antecedent basis for the limitation in claim 10, because claim 7 is not a method claim comprising any step limitations. For the purposes of examination, the Office will interpret claim 10 to state:

The method as recited in claim 9...

19. Claim 11 recited the limitation "said pushing of a reference" in line 34. There is insufficient antecedent basis for this limitation in the claim. For the purposes of examination, the Office will interpret claim 11 to state:

The method as recited in claim 10...

20. Claim 14 recites the limitation "said Java computing environment" in line 13. There is insufficient antecedent basis for this limitation in the claim.

The rejection of the base claims is necessarily incorporated into their dependent claims.

21. The limitations "A Java Bytecode instruction" in claims 2-3, "Java virtual machine" in claim 5, "A Java virtual machine" in claims 6-7, "A method" in claims 9 and 11-13, and "A computer readable media" in claims 15-19 make it unclear

Art Unit: 2124

as to whether or not these elements refer to the "instruction", "machine", "method" or "media" in base claims 1, 4, 8, and 14.

Appropriate correction is required.

22. Claim 17 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. It is unclear as to how said computer program code is performed by executing a Java Aload instruction. The claim 17 is interpreted to state:

... computer program code comprising a Java Aload instruction that when executed performs the pushing of said reference.

### ***Claim Rejections - 35 USC § 103***

23. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

24. Claims 1, 3-5, and 7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Peter van der Linden ("Just Java 1.1 and Beyond 3<sup>rd</sup> Edition"), hereafter "**Linden**", and further in view of Blandy et al. (U.S. Patent No. 6,654,778), hereafter "**Blandy**".

25. As to claim 1:

Linden discloses retrieving a string representation associated with a Java object, thereby allowing said string representation to be determined (pg. 116, "... create a String representation...").

Linden does not explicitly disclose that a Java Bytecode instruction operates to perform said retrieval without invoking a Java method.

However, Blandy discloses a Java bytecode instruction suitable for execution by a Java virtual machine in a Java computing environment (Figs. 1, 2, and 3) that operates to have the functions performed by a Java method without invoking said Java method (col. 5 line 65 – col. 6 line 51 "The interpreter is directed by the bytecode...", "performs the function of the method", "... avoid the function activation and interpretation overhead").

At the time the invention was made, it would have been obvious to a person of ordinary skill in the art to cause the functions of a Java method for retrieving a string representation of an object as disclosed by Linden to be performed without invoking a Java method as taught by Blandy. The suggestion for doing so would have been to avoid function activation and overhead to calls to Java methods in a Java Virtual Machine as suggested by O'Connor (title, col. 2, lines 24-28).

26. As to claim 3:

Rejection of claim 1 is incorporated, and further Blandy discloses wherein

Art Unit: 2124

said Java Bytecode instruction is executed in an embedded system (col. 3, lines 4 –67, “data processing system ... PDA device”).

27. As to claim 4:

Claim 4 recites limitations already discussed in connection with claim 1, and furthermore, a Java “to\_string” method is one taught by Linden (pg. 116 paragraph 1, “toString”) and referred to as retrieving the string representation of an object as discussed in claim 1. Therefore, claim 4 is rejected under the same rationale as discussed in connection with claim 1.

28. As to claim 5:

Rejection of claim 4 is incorporated and further claim 5 recites limitations already discussed in connection with claim 1; therefore, claim 5 is rejected under the same rationale as discussed in connection with claim 1.

29. As to claim 7:

Rejection of claim 5 is incorporated and further claim 7 recites limitations already discussed in connection with claim 3 implicitly incorporated given said Java Bytecode instruction is executed in the Java Virtual machine as taught by Blandy. Therefore, claim 7 is rejected under the same rationale as discussed in connection with claim 3.

Art Unit: 2124

30. Claims 2, 6, and 8-19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Linden and Blandy as applied to claims 1, 3, 4, 5, and/or 7 above, and further in view of O'Connor et al. (U.S. Patent No. 6,026,485), hereafter "**O'Connor**".

31. As to claim 2:

Linden discloses determining a string representation of a field associated with said Java object (pg. 116 "• You can provide.... toString() ... print value of key fields...").

It is not explicitly taught in the combined disclosure of Linden and Blandy:

The *Java virtual machine operates to:*

pop a reference to said Java object from an execution stack;

determine a string representation...;

push a reference to said string representation of said field on top of said execution stack.

However, O'Connor explicitly teaches a Java virtual machine operational to pop data from the top of the stack (as in claim limitation: **pop a reference to said Java object from an execution stack**), operate on the data (as in claim limitation: **determine a string representation of a field associated with said Java object**), and push the result onto the stack (as in claim limitation: **push a reference to said string representation of said field on top of said execution stack**) (col. 3, lines 5-15).

Art Unit: 2124

At the time the invention was made, it would have been obvious to a person of ordinary skill in the art to retrieve the string representation of an object as taught by Linden without invoking a Java method in Java Virtual Machine as taught by Blandy through the conventional use of a Java Virtual Machine as taught by O'Connor.

The motivation for doing so would have been because the Java virtual machine is a stack-oriented abstract computing machine, where instructions operate on data at the top of an operand stack and it is of conventional practice to use the Java Virtual Machine in this way as suggested by O'Connor (col. 2, line 60 – col. 3, line 15).

32. As to claim 6:

Rejection of claim 5 is incorporated and further claim 6 recites limitations already discussed in connection with claim 2 as interpreted by the Office (refer to #10 of this Office action); therefore, claim 6 is rejected under the same rationale as claim 2.

33. As to claim 8:

Claim 8 recites limitations already discussed in connection with claim 1 (see discussion of claim 1).

It is not expressly disclosed in the combination of Linden and Blandy that said Java Bytecode instruction is received in stream of Java Bytecodes.



O'Connor discloses executing bytecodes in an instruction stream (col. 18 lines 58-64, "execution of the instruction stream").

At the time of the invention was made, it would have been obvious to a person of ordinary skill in the art to receive the Java Bytecode instruction as taught by Blandy for retrieval of a string representation of an object by Linden in a stream of Java Bytecodes as taught by O'Connor.

The suggestion for doing so would have been to provide a load top-of stack instruction (col. 3 lines 5-15), such as the "aload" instruction of the Virtual Machine Instruction Set for loading object references (col. 61, lines 55-58, "aload"), prior to performing functions on the object referenced (col. 3 lines 5-15, "as precursor of execution of an instruction which immediately follows") because the Java Virtual Machine typically "operates on data at the top of and operand stack" as taught by O'Connor col. 3 line 6.

34. As to claim 9:

Rejection of claim 8 is incorporated and further claim 9 recites limitations already discussed in connection with claim 2. Therefore, claim 9 is rejected under the same rationale as claim 2.

35. As to claim 10:

Rejection of claim 9 is incorporated and further claim 10 recites limitations already discussed in connection with claim 8. Therefore, claim 10 is rejected under rationale addressed in connection with claim 8.

36. As to claim 11:

Rejection of claim 10 is incorporated and further claim 11 recites limitations already discussed in connection with claim 8. Therefore, claim 11 is rejected under rationale addressed in connection with claim 8.

37. As to claim 12:

Rejection of claim 11 is incorporated and further claim 12 recites limitations already discussed in connection with claim 8. Therefore, claim 12 is rejected under rationale addressed in connection with claim 8.

38. As to claim 13:

Rejection of claim 12 is incorporated and further claim 13 recites limitations already addressed in connection with claim 7. Therefore, claim 13 is rejected under the same rationale as claim 7.

39. As to claim 14:

Claim 14 recites limitations as discussed in connection with claim 8, therefore, claim 14 is rejected under the same rationale as claim 8. Furthermore, Blandy teaches computer readable media including computer program code for distribution of the invention to be performed by a Java Virtual Machine (col. 8, lines 22-33, "computer readable medium of instructions").

Art Unit: 2124

40. As to claim 15:

Rejection of claim 14 is incorporated, and further claim 15 recites limitations as discussed in connection with claim 9, therefore claim 15 is rejected under the same rationale as claim 9.

41. As to claim 16:

Rejection of claim 15 is incorporated, and further claim 16 recites limitations as discussed in connection with claim 10, therefore claim 16 is rejected under the same rationale as claim 10.

42. As to claim 17:

Rejection of claim 15 is incorporated, and further Linden and Blandy do not explicitly teach pushing said reference (to said string representation...) is performed by executing a Java Aload instruction.

However, O'Connor teaches a Java Aload instruction of the Virtual Machine Instruction Set for loading references (col. 61, lines 55-58, "aload").

At the time of the invention it would have been obvious to one of ordinary skill to execute the Java Aload instruction as taught by O'Connor in order to push a reference to said string representation as disclosed to be obtained by Linden using the method of avoiding invoking a Java method as disclosed by Blandy.

The motivation to do so would have been to provide a means for the Java Virtual Machine, which is a stack-based machine, to operate on or use the data (in the future) pushed on to the top of the stack by the aload instruction which

Art Unit: 2124

performs this function as clearly taught by O'Connor col. 2 line 60 – col. 3 line 15, and col. 61, lines 55-58.

43. As to claim 18:

Rejection of claim 17 is incorporated and further claim 18 recites limitations as discussed in connection with claim 14, therefore, claim 18 is rejected on the rationale as discussed in connection with claim 14.

44. As to claim 19:

Rejection of claim 18 is incorporated and further claim 19 recites limitations as recited in claim 13, therefore, claim 19 is rejected under the same rationale as claim 13.

### ***Conclusion***

45. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

a. Blandy et al. (USPN 6,385,764) teaches a method and apparatus for improving invocation speed of Java methods.

b. Blandy et al. (USPN 6,481,006) teaches a method and apparatus for efficient invocation of Java methods from native codes.

46. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Carlene Gordon whose telephone number is

Art Unit: 2124

(571) 272-3722. The examiner can normally be reached on Mon.-Fri. 8:30am-5:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Kakali Chaki can be reached on (571) 272-3719. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

C.G. / C.M.

  
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